

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte MICHAEL J. SULLIVAN

Appeal No. 2004-0049
Application No. 10/047,626

ON BRIEF

Before GARRIS, NASE, and CRAWFORD, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 14 to 20, which are all of the claims pending in this application.

We AFFIRM.

BACKGROUND

The appellant's invention relates to improved golf balls comprising multi-layer covers which have a hard inner layer and a relatively soft outer layer (specification, p.

1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

| | | |
|----------------------------|-----------|---------------|
| Nesbitt | 4,431,193 | Feb. 14, 1984 |
| Isaac | 5,000,459 | Mar. 19, 1991 |
| Horiuchi et al. (Horiuchi) | 5,222,739 | June 29, 1993 |

Claims 14 to 17, 19 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi and the appellant's disclosure.

Claim 18 stands rejected under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi, the appellant's disclosure and Isaac.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the answer (Paper No. 14, mailed July 2, 2003) for the examiner's complete reasoning in support of

the rejections, and to the brief (Paper No. 13, filed April 22, 2003) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

The 35 U.S.C. § 103 rejection of claims 14 to 17, 19 and 20

We sustain the rejection of claims 14 to 17, 19 and 20 under 35 U.S.C. § 103.

Claims 14, 19 and 20, the independent claims under appeal, read as follows:

14. A golf ball comprising:
 - a core;
 - an inner cover layer molded on said core, the inner cover layer comprising a high acid ionomer including at least 16 % by weight of an alpha, beta-unsaturated carboxylic acid; and
 - an outer cover layer molded on said inner cover layer, said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of low flexural modulus ionomer resins and non-ionomeric elastomers.
19. A multi-layer golf ball comprising:
 - a spherical core;
 - an inner cover layer molded over said spherical core, said inner cover layer comprising an ionomeric resin including at least 16% by weight of an alpha,

beta-unsaturated carboxylic acid, and said inner cover having a modulus of from about 15,000 to about 70,000 psi; and
an outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.

20. A multi-layer golf ball comprising:
a spherical core;
an inner cover layer molded over said spherical core to form a spherical intermediate ball, said inner cover layer comprising an ionomeric resin including about 17 % to about 25 % by weight of an alpha, beta-unsaturated carboxylic acid; and
an outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.

Nesbitt's invention relates to a golf ball having a multilayer or two-ply cover construction for a solid resilient center or core wherein the multilayer cover construction involves two stage molded cover compositions over a solid center or core of resilient polymeric material wherein an increased coefficient of restitution is attained and wherein the "feel" or playing characteristics are attained similar to those derived from a balata covered golf ball. The golf ball has a solid center or core 12 of resilient polymeric or similar material covered by a first layer or ply 14 of molded hard, highly flexural modulus resinous material or of cellular or foam composition which has a high coefficient of restitution. The first layer or ply is provided with a second or cover layer 16 of a comparatively soft, low flexural modulus resinous material or of cellular or foam composition molded over the first layer and core or center assembly. Nesbitt teaches

(column 1, lines 57-60) that "[t]hrough the use of the first ply or layer of hard, high flexural modulus resinous material on the core or center, a maximum coefficient of restitution may be attained." The resinous material for the first ply or layer 14 is a resinous material such as type 1605 Surlyn[®] which is a hard, high flexural modulus resin which produces a substantial gain of coefficient of restitution over the coefficient of restitution of the core or center. The outer layer, ply, lamination or cover 16 is a resinous material such as type 1855 Surlyn[®] which is a comparatively soft, low flexural modulus resinous material.

The appellant's disclosure teaches (pages 4-5) that (1) Surlyn[®] 1605 (now designated Surlyn[®] 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi; and (2) Surlyn[®] 1855 (now designated Surlyn[®] 9020) is a zinc ion based low acid (10 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 14,000 psi.

Horiuchi's invention relates to a golf ball having excellent impact resilience and flying performance, of which the cover is formed from an ionomer resin which contains an alpha, beta-ethylenic unsaturated carboxylic acid in a larger amount than conventional ionomer resins. In the background of the invention, Horiuchi provides that

it is known to compose a golf ball of a core and a cover covering the core wherein the ionomer resin which is used as the cover of the golf ball contains alpha, beta-ethylenic unsaturated carboxylic acid in an amount of less than 15% by weight. In the summary of the invention, Horiuchi states that

It has been surprisingly found that a carboxyl-rich ionomer resin which contains 16 to 30% by weight of an alpha, beta-ethylenic unsaturated carboxylic acid significantly improves the properties of the golf balls, such as impact resilience and flying performance. Thus, the present invention provides a golf ball which comprises a core and a cover covering the core, wherein the cover contains at least 20% by weight of a carboxyl-rich ionomer resin prepared by neutralizing 15 to 80 mol % of carboxylic acid groups of an olefinic copolymer containing 16 to 30% by weight of an alpha, beta-ethylenic unsaturated carboxylic acid with monovalent or divalent metal ions.

Horiuchi then provides (column 1, lines 50-59) that

an amount of the alpha, beta-ethylenic unsaturated carboxylic acid is limited to 16 to 30% by weight, preferably 20 to 30% by weight, based on the total monomer weight. Thus, the balance of the monomer is the alpha-olefin. If the amount of the alpha, beta-ethylenic unsaturated carboxylic acid is less than 16% by weight, a stiffness modulus is low and an impact resilience is low, thus resulting in poor flying performance.

Horiuchi also teaches (column 2, lines 16-18) that it is preferred that the carboxyl-rich ionomer resin of the present invention has a stiffness modulus of 3,000 to 6,000 Kgf/cm² which converts to about 42,670 to 85,340 psi.

After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Based on our analysis and review of Nesbitt and claims 1, 19 and 20, it is our opinion that the differences are: (1) the inner cover layer comprising a high acid ionomer including at least 16 % by weight of an alpha, beta-unsaturated carboxylic acid as recited in claim 1; (2) the inner cover layer comprising an ionomeric resin including at least 16 % by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of from about 15,000 to about 70,000 psi as recited in claim 19; and (3) the inner cover layer comprising an ionomeric resin including about 17% to about 25% by weight of an alpha, beta-unsaturated carboxylic acid as recited in claim 20.

In applying the test for obviousness,¹ we reach the conclusion that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to have modified the resinous material used for the inner cover of Nesbitt's golf ball to be an ionomer resin containing about 20% alpha, beta-ethylenic unsaturated carboxylic acid as suggested by the teachings of Horiuchi to improve the impact resilience of the

¹ The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

inner cover and thus increase the coefficient of restitution of the inner cover and the golf ball.

The appellant argues that there is no motivation, absent the use of impermissible hindsight, for a person of ordinary skill in the art to have modified the inner cover 14 of Nesbitt's golf ball from the teachings of Horiuchi and that the teachings of Horiuchi would have made it obvious to have modified the outer cover 16 of Nesbitt's golf ball. We do not agree. Nesbitt clearly teaches (column 2, lines 40-65) that the inner cover 14 of Nesbitt's golf ball is a hard, high flexural modulus resin which "is employed to increase the coefficient of restitution in order to attain or approach the maximum initial velocity for the golf ball" and that the outer cover 16 of Nesbitt's golf ball is a soft low flexural modulus resin which "provides little or no gain in the coefficient of restitution." In our view, Horiuchi's teaching to use a carboxyl-rich ionomer resin which contains preferably 20 to 30% by weight of an alpha, beta-ethylenic unsaturated carboxylic acid to significantly improve the properties of a golf ball, such as impact resilience and flying performance, would have made it obvious at the time the invention was made to a person of ordinary skill in the art to have modified the cover layer of Nesbitt's golf ball that Nesbitt teaches should have the maximum coefficient of restitution (i.e., inner cover 14).

With regard to claims 19 and 20, the recited inner cover layer having a modulus of from about 15,000 to about 70,000 psi and/or the outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi is met by Nesbitt's inner cover 14 of Surlyn® 1605 having a flexural modulus of about 51,000 psi and Nesbitt's outer cover 16 of Surlyn® 1855 having a flexural modulus of about 14,000 psi. Furthermore, the recited inner cover layer having a modulus of from about 15,000 to about 70,000 psi is met by Horiuchi's cover material, which has a modulus of about 42,670 to 85,340 psi, when such material is substituted for the inner cover layer of Nesbitt's golf ball.

As to the appellant's argument pointing out the deficiencies of both Nesbitt and Horiuchi on an individual basis, we note that it is well settled that nonobviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. See In re Merck & Co. Inc., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986). In this case, the combined teachings of the applied prior art are suggestive of the claimed subject for the reasons set forth above.

In the brief (p. 8), the appellant has referenced the Board decision in a first related appeal (i.e., Application No. 08/815,556). In response, the examiner (answer, pp. 6 and 8) has referenced the Board decision in another related appeal (i.e.,

Application No. 09/121,628). We have reviewed both Board decisions and note that our decision herein is in harmony with our decision in Application No. 09/121,628. As to the Board decision in Application No. 08/815,556, we note that the issue in that appeal was whether or not the claims under appeal would have been obvious at the time the invention was made to a person of ordinary skill in the art from the teachings of Nesbitt and U.S. Patent No. 5,068,151 to Nakamura. Thus, the issues in this appeal are different than the issue decided in the Board decision in Application No. 08/815,556.

For the reasons set forth above, the decision of the examiner to reject claims 14, 19 and 20 under 35 U.S.C. § 103 as being unpatentable over Nesbitt in view of Horiuchi and the appellant's disclosure is affirmed. The appellant has grouped claims 14 to 17 as standing or falling together.² Thereby, in accordance with 37 CFR § 1.192(c)(7), claims 15 to 17 fall with claim 14. Thus, it follows that the decision of the examiner to reject claims 15 to 17 under 35 U.S.C. § 103 is also affirmed.

The 35 U.S.C. § 103 rejection of claim 18

We sustain the rejection of claim 18 under 35 U.S.C. § 103.

Claim 18 reads as follows:

² See pages 3-4 of the appellant's brief.

A golf ball according to claim 14 wherein the non-ionomeric elastomer is a polyurethane.

Thus, claim 18 requires a golf ball comprising: a core; an inner cover layer molded on said core, the inner cover layer comprising a high acid ionomer including at least 16 % by weight of an alpha, beta-unsaturated carboxylic acid; and an outer cover layer molded on said inner cover layer, said outer cover layer comprising a relatively soft polymeric material selected from the group consisting of low flexural modulus ionomer resins and polyurethane.

The applied prior art of Nesbitt, Horiuchi and the appellant's disclosure renders obvious the subject matter of claim 18 for the reasons set forth above with respect to claim 14. In that regard, Nesbitt teaches an outer cover layer comprising a relatively soft polymeric material selected from low flexural modulus ionomer resins (i.e., Surlyn[®] 1855 which is a zinc ion based low acid (10 weight percent methacrylic acid) ionomer resin). Thus, there is no need for modifying the outer cover layer of Nesbitt to include polyurethane.

For the reasons set forth above, the decision of the examiner to reject claim 18 under 35 U.S.C. § 103 is affirmed.³

³ Thus, we regard the examiner's application of the teachings of Isaac to be mere surplusage.

CONCLUSION

To summarize, the decision of the examiner to reject claims 14 to 20 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS
Administrative Patent Judge

JEFFREY V. NASE
Administrative Patent Judge

MURRIEL E. CRAWFORD
Administrative Patent Judge

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